Research Problem and Rationale

Many people living with chronic aphasia have unmet communication needs that may be addressed through alternative communication options. Clinical research on the use of augmentative and alternative communication (AAC) strategies by people with aphasia documents diverse outcomes for this population (Lasker, 2002). Determining which alternative options are the most useful tools for particular clients can be challenging because clinicians must consider user capabilities and challenges, characteristics of the communication environment, and particular features of AAC systems. In addition, they must assess an individual's potential to use an AAC system or strategy given instruction, practice, and environmental modifications. While several researchers have provided suggestions for matching AAC strategies to communicators with aphasia (Garrett & Kimelman, 2000), clinicians have few diagnostic paradigms for predicting which individuals will benefit from particular strategies.

The current research project sought to improve this process by developing and validating assessment protocols that classify communicators with aphasia who use AAC as either *independent* or *partner-dependent*. They then assessed actual clients' independence and skills with AAC strategies based on their performance on these new assessment tools.

Assessment Tools

The authors designed two assessment tools – the *Multimodal Communication Screening Task for Persons with Aphasia* (MCST) and *AAC Systems Trials for Communicators with Aphasia* (AST). The MCST consists of a sample communication book containing pictures, words, sentences, letters and a map. During administration of the MCST, the clinician asks the client to communicate different types of messages using the materials in the book or any natural strategies or modalities (e.g., speech, gestures, air-writing, etc.). The test administration is videotaped after which clinicians score response adequacy, communication modes and symbols used, number of independent communication attempts vs. cued attempts, client's ability to navigate through the book, and types of clinician cues. The information obtained from administering the MCST functions as a type of "stimulability" probe to explore the client's potential for independent use of external AAC strategies. Systems trials are then administered.

There are two components to the *AAC Systems Trials for Communicators with Aphasia* (AST). The first component, Partner Supported Strategies Trials for Dependent Communicators, explores the client's ability to utilize a variety of partner-supported conversation techniques, including Written Choice Conversation (Garrett, 1993), the Augmented Input Strategy (Garrett & Beukelman, 1998), cued question-asking, and tagged yes-no responses. The second component, Voice-Output Technology Trials for Independent Communicators, creates a communication opportunity with one or more voice-output AAC systems. The protocol is videotaped**.** Clinicians tally successful communication exchanges, client initiations, and ability to combine symbols, switch or navigate levels within a system, integrate unaided strategies, resolve communication breakdowns, and communicate in a functional manner.

Methods of Data Acquisition

During this stage of the study, investigators filmed four communicators with aphasia who participated in the assessment battery described above. Investigators traded videotapes and scored the protocols independently. In addition, six graduate student**s** with significant experience with severe aphasia rated the videotapes and classified the communicators. Inter-examiner agreement was computed; transcriptions from focus group discussions on problematic vs. valid assessment tasks were qualitatively analyzed for themes and suggestions for improvement.

Results and Analysis

R.C., a 63 year-old gentleman with an Aphasia Quotient of 12.3 on the Western Aphasia Battery (Kertesz, 1982) who was 2 years post onset of a single, left, embolic CVA, participated in both assessment tasks. After speech production training, the client was able to repeat a repertoire of 200 words but could spontaneously use only 5 of the target words. His performance on the MCST resulted in the following scores: 3 of 25 independently communicated messages, 5 additional messages communicated with cues, 2 pages accessed successfully on 20 opportunities (5%), 1 of 5 single symbol messages, 1 of 5 two-symbol combinations. During *AAC Systems Trials*, R.C. understood and communicated correct responses using the Written Choice Conversation strategy with greater than 80% accuracy within the first week of trial; he increased attention to speaker's message as well as accuracy of responses given Augmented Input; he achieved 50% accuracy on use of external symbols to conduct a transaction with a communication book given three practice trials and modeling with a script. In addition, his caregiver reported one instance of independent communication book accessing at home within a four month period. Results suggested that R.C. was primarily a partner dependent communicator; however, intermittent independent use of communication book and symbolic gesture were suggestive of potential transition to a limited stored message communicator.

R.M., a 65 year-old gentleman with an Aphasia Quotient of 55.4 on the Western Aphasia Battery (Kertesz, 1982) who was 9 years post onset of a single, left, embolic CVA, also participated in both assessment tasks. After speech production training, RM could spontaneously use a total of 20 messages and demonstrated the potential to produce untrained utterances when augmented with his voice-output AAC device. He independently communicated 25 of 25 items on the MCST using symbol combinations, letter-spelling and natural strategies (i.e. gesture, air-writing). He required no cueing to turn pages to locate potential symbols for message formulation. During Partner Dependent strategy trials, R.M. successfully communicated with Written Choice, Augmented Input, and tagged yes-no questions; however, these strategies were deemed unnecessary for him due to his relatively good comprehension and his ability to use external strategies. During Voice-Output Technology Trials for Independent Communicators, R.M. independently accessed word symbols to generate two-word messages in conversational role-plays, produced complete messages by hitting single message keys, cleared messages, backspaced, moved from page to page on the device, and adjusted the speaker volume. In addition, he utilized the rate enhancement features of the keyboard page on the machine to produce utterances. He was frequently able to hit the first letter of a word, but required minimal cueing to search the predicted words in the first row. When instructed to have the machine read each word choice aloud, he was independent with this task. He made use of both letter-based and

symbol-based pages during this trial. Results suggested that R.M. was clearly an independent communicator. In time, R.M. learned to use a combination of speech, voice-output device, and natural strategies to communicate effectively and maintain an independent lifestyle.

Conclusions and Clinical Implications

The “real-life” performance of the communicators in the study matches their classification on the assessment tools developed for this project. Preliminary results from this study suggest that several elements of the assessment protocol contribute to predicting the categorical assignment of communicators with aphasia. Specific test results, along with participants’ behaviors during AAC trials, may enable clinicians to describe and treat individuals with aphasia with greater accuracy. Future research will refine these tools and systematically gather reliability and validity data.

Selected References

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